**Micro Case 18 – *Blastomyces dermatitidis* (blastomycosis)**

**1. Signs and symptoms for the disease it produces.**

* Fever
* Productive cough
* Pleuritic chest pain
* Weight loss
* Crackles heard in lung
* **CXR showing multiple nodular lesions**
* **Verrucous skin lesion that is tender and erythematous**
* This pt had been a resident of Tennessee
  + The mycosis is endemic in the southeastern U.S.

**2. The source of infectious organism.**

*Blastomyces dermatitidis*

**3. The manner of exposure, route of infection, tissues that they reside and, where appropriate, transmission to others.**

* Endemic in **southeastern United States (states east of the Mississippi river)**
  + Disease known there as North American blastomycosis
* Also in Canada, Central and South America
* Wooded areas w/ decaying vegetation in warm, moist soil harbor the fungus
* Infection from **inhalation** of microconidia

**4. The pathology and the manner by which the particular disease develops and/or is induced, including damage caused by the pathogen and damage caused by the immune system’s response to the pathogen.**

* Inhalation of microconidia and conversion to the yeast forms in the lungs
* 4-6 week incubation time
* Neutrophils recruited to fight the yeast
  + Get **suppurative** and **granulomatous inflammation**
* Commonly see lymphohematogenous spread to other organs
* Skin involvement w/ **micro abscesses** in papillary dermis
  + Presents as **verrucous (wartlike) skin lesions** w/ pustular features

**5. Methods of identification and placement into a particular biological subset.**

* **Direct microscopy** of sputum or bronch specimen and biopsy of lesions
* **Mycologic cultures** of bronch specimen and biopsy of lesion
* **DNA test** w/ chemiluminescent DNA probes

*B. dermatitidis* is a **dimorphic fungus**. Grows as a **white fluffy mold** at room temp. At body temp, get brown, wrinkled colonies. **Large yeast forms (10 to 12 microns) w/ broad-based budding** are virtually diagnostic.

**6. Factors leading to enhanced resistance or susceptibility (e.g., recipients of vaccines, residence in geographic areas, types of work, immunodeficiency, alcoholism, age, violence/abuse, religious beliefs, etc.).**

Being in endemic areas

**7. Other organisms in the differential diagnosis and how to discriminate among potential causative agents.**

* Carcinoma
* Lung abscess
* Nocardiosis
* Sarcoidosis
* Tuberculosis

All endemic fungi may cause a pulmonary infection that is indistinguishable from TB on clinical presentation. In appropriate geographic regions, endemic mycoses are the major agents included in the differential.

**8. Prevention, treatment and vaccine design (live vs. dead).**

No vaccine. Prevention is difficult. Good news is that it’s not transmissible from person to person.

Treat with **itraconazole** unless patient is severely ill or has brain abscess, then Amphotericin B.